AMENDMENTS TO THE CLAIMS:

Claim 1 (Currently amended): A detection system for a bio-separation device ~~having a separation channel~~, comprising:

a separation channel having an exit and a first width;

a detection section having a second width larger than the first width of the separation channel, wherein flow from the separation channel exits from ~~along~~ the exit of the separation channel into the detection section, and wherein mixing or diffusion of analytes occurs near the exit of the separation channel;

the separation channel having a first width, and the detection section having a second width larger than the first width of the separation channel and a transition in width from the first width of the separation channel to the second width of the detection section;

~~means for~~ an excitation system introducing excitation radiation at the detection section ~~zone~~; and

~~means for~~ a detector system detecting radiation emission axially from a location along the detection section defining a detection zone as analytes pass the detection zone, said location being defined at a distance of 100 to 500 times the second width of the detection section from the exit of the separation channel, thereby allowing analytes sufficient distance to regroup from the mixing or diffusion near the exit of the separation channel ~~transition~~, said detector system ~~means for detecting radiation emission~~ including an optic fiber having an end in close proximity to the detection zone.

Claim 2 (Currently amended): The detection system as in claim 1, wherein the ~~means for axially detecting radiation emission~~ detector system comprises a fiber that is directed into an end of the detection section in proximity to the detection zone.

Claim 3 (Currently amended): The detection system as in claim 2, wherein the excitation system comprises a radiation transmitting structure ~~further comprising means for~~ introducing excitation radiation axially at the detection zone.

Claim 4 (Currently amended): The detection system as in claim 3, wherein the radiation transmitting structure ~~means for introducing excitation radiation axially~~ comprises a fiber that is directed into an end of the detection section in proximity to the detection zone.

Claim 5 (Currently amended): The detection system as in claim 4, wherein the ~~means for axially detecting radiation emission~~ detector system shares the ~~same single~~ fiber with the radiation transmitting structure ~~as the means for introducing excitation radiation axially~~ to transmit excitation radiation and radiation emission.

Claim 6 (Original): The detection system as in claim 5, further comprising a confocal optical element that transmits excitation radiation and radiation emission.

Claim 7 (Original): The detection system as in claim 6, wherein the confocal optical element comprises micro-lenses.

Claim 8 (Original): The detection system as in claim 6, wherein the confocal optical element comprises a beam combiner.

Claim 9 (Currently amended): The detection system as in claim 1, wherein the ~~means for detecting radiation emission from the detection zone~~ detector system comprises a set of micro-lenses.

Claim 10 (canceled)

Claim 11 (Currently amended): The detection system as in claim ~~3~~ 2 wherein the ~~means for introducing excitation radiation axially~~ excitation system comprises a radiation source and a light transmitting material disposed between the radiation source and the detection zone to guide excitation radiation to the detection zone.

Claim 12 (Currently amended): The detection system as in claim 11 wherein the ~~means for introducing excitation radiation axially~~ excitation system further comprises a boundary material that surrounds the light emitting material for guiding the excitation radiation ~~from the excitation source~~ to the detection zone.

Claim 13 (Original): The detection system as in claim 12 wherein the light transmitting material has a refractive index greater than the refractive index of the boundary material to guide the excitation radiation from the radiation source to the detection zone by internal reflection.

Claim 14 (Original): The detection system as in claim 13, wherein the boundary material is embodied in a tube.

Claim 15 (Currently amended): The detection system as in claim 1 wherein the analytes comprise a material that fluoresces in the presence of the excitation radiation, and the ~~means for detecting radiation emission~~ detector system comprises a detector ~~means for~~ detecting fluorescence emission of the material.

Claim 16 (Currently amended): A bio-separation instrument, comprising:

a separation channel having a first width and an exit;

~~means for~~ a separation system separating a sample in the separation channel into analytes; and

a detection system, comprising:

(a) a detection section ~~along the separation channel, the separation channel having a first width, and the detection section~~ having a second width larger than the first width of the separation channel wherein flow from the separation channel exits from the exit of the separation channel into the detection section, and wherein mixing or diffusion of analytes occurs near the exit of the separation channel; ~~and a transition in width from the first width of the separation channel to the second width of the detection section~~;

(b) ~~means for~~ a radiation system introducing excitation radiation at the detection section ~~zone~~; and

(c) ~~means for~~ a detector system detecting radiation emission axially from a location along the detection section defining a detection zone as analytes pass the detection zone, said location being defined at a distance of 100 to 500 times the second width of the detection section from the exit of the separation channel, thereby allowing analytes sufficient distance to regroup from the mixing or diffusion near the exit of the

separation channel ~~transition~~, said means for detecting radiation emission including an optic fiber having an end in close proximity to the detection zone.

Claim 17 (Previously presented): The detection system as in claim 17 wherein the radiation emission is at least one of:

fluorescene;

chemiluminescence; and

phosphorescence.

Claim 18 (Currently amended): A bio-separation instrument as in claim 17, wherein the separation channel is defined by a capillary column, and the ~~means for separating a sample~~ separation system is configured to effect separation of the sample by electrophoresis.

Claim 19 (Canceled)

Claim 20 (Canceled)

Claim 21 (Canceled)

Claim 22 (New): A detection system for a bio-separation device, comprising:

a seperation channel having an exit and a first width;

a detection section having a second width larger than the first width of the separation channel, wherein flow from the separation channel exits from the exit of the separation channel into the detection section, and wherein mixing or diffusion of analytes occurs near the exit of the separation channel;

an excitation system introducing excitation radiation axially at a location along the detection section defining a detection zone as analytes pass the detection zone, said location

being defined at a distance of 100 to 500 times the second width of the detection section from the exit of the separation channel, thereby allowing analytes sufficient distance to regroup from the mixing or diffusion near the exit of the separation channel, said excitation system including an optic fiber having an end in close proximity to the detection zone; and

a detector system detecting radiation emission from the detection zone.